Exam: Function Reflections (Practice version 10)

1. Let function f be defined by the polynomial below:

$$f(x) \;=\; -2x^4 - 3x^3 + 5x^2 - 4x + 7$$

Draw lines that match each function reflection with its polynomial:

Reflections	Polynomials

$-f(x)$ ●   ● $2x^4 - 3x^3 - 5x^2 - 4x - 7$

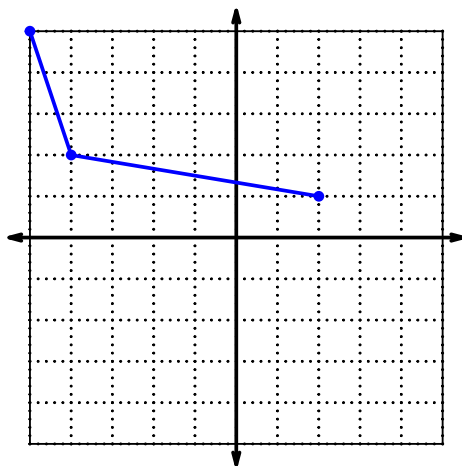$-f(-x)$ ●   ● $2x^4 + 3x^3 - 5x^2 + 4x - 7$
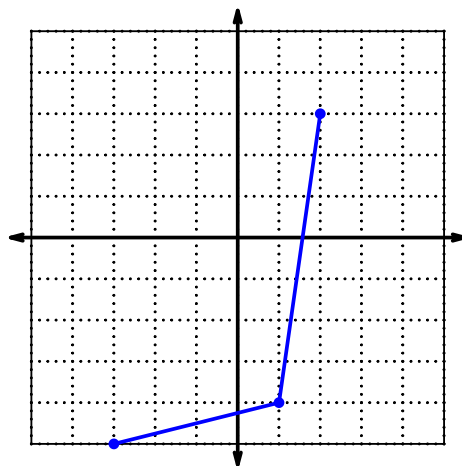
$f(-x)$ ●   ● $-2x^4 + 3x^3 + 5x^2 + 4x + 7$

2. In each xy plane shown below, a function is graphed with blue. Draw the indicated reflections (as a second curve, indicated in legend) with black (or with whatever you have). The x axis is horizontal and the y axis is vertical (as typical), and the scale is equal on both axes.
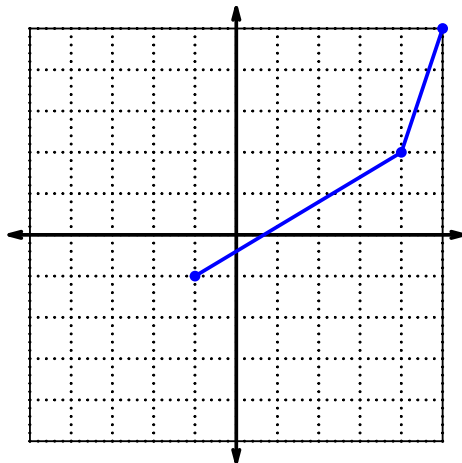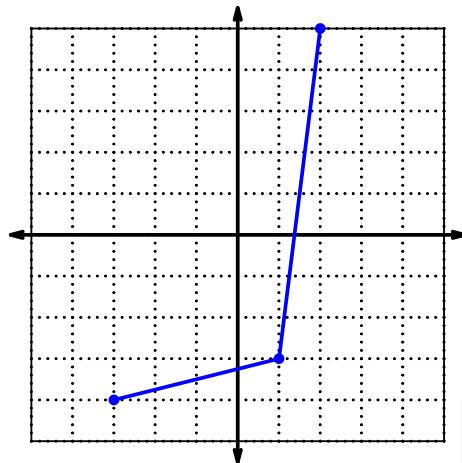

- $y = g(x)$
- $y = -g(x)$

- $y = h(x)$
- $y = h(-x)$

- $y = m(x)$
- $y = m^{-1}(x)$

- $y = p(x)$
- $y = -p(-x)$

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For all questions on this page, the functions f, g, and h are defined by the table below.

x	$f(x)$	$g(x)$	$h(x)$
1	2	4	8
2	4	3	6
3	7	1	5
4	9	7	9
5	5	8	2
6	8	6	4
7	6	5	1
8	3	9	3
9	1	2	7

3. Evaluate $h(1)$.

4. Evaluate $g^{-1}(2)$.

5. Assuming f is an **even** function, evaluate $f(-7)$.

6. Assuming g is an **odd** function, evaluate $g(-5)$.

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7. A function, f, is **even** if $f(x) = f(-x)$ for all x in the domain. A function, g, is **odd** if $g(x) = -g(-x)$ for all x in the domain.

Let polynomial p be defined with the following equation:

$$p(x) = -x^3 + x$$
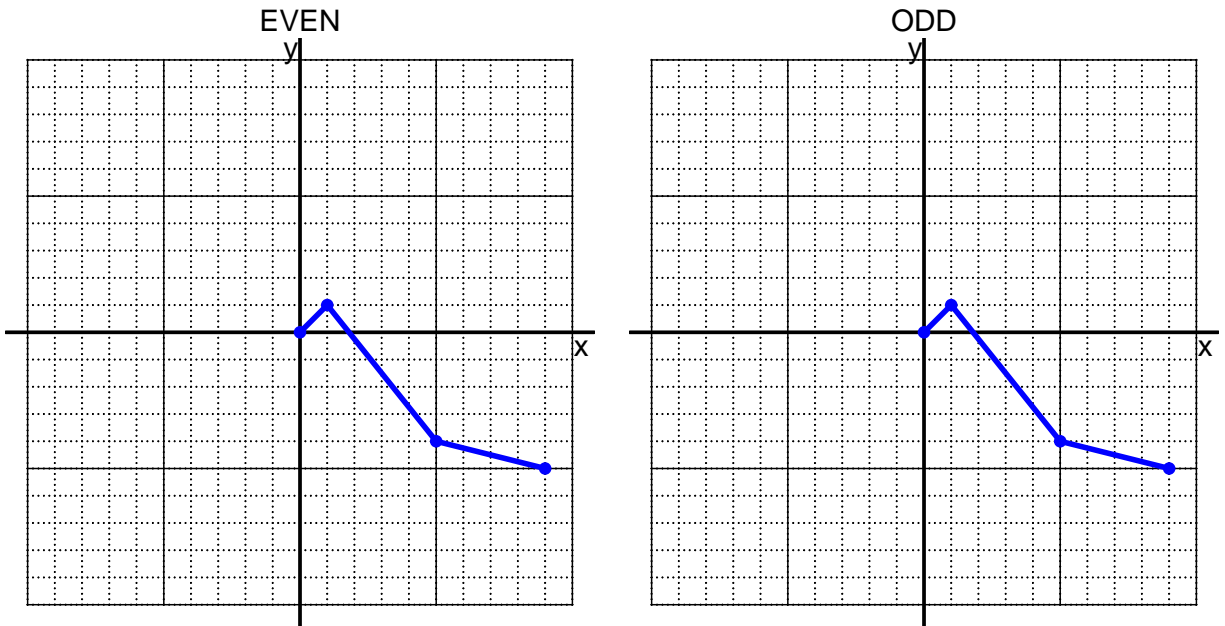
    a. Express $p(-x)$ as a polynomial in standard form.

    b. Express $-p(-x)$ as a polynomial in standard form.

    c. Is polynomial p even, odd, or neither?

    d. Explain how you know the answer to part c.

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8. I have drawn half of a function. Draw the other half to make it even or odd.

EVEN

ODD

9. Let function f be defined with the equation below.

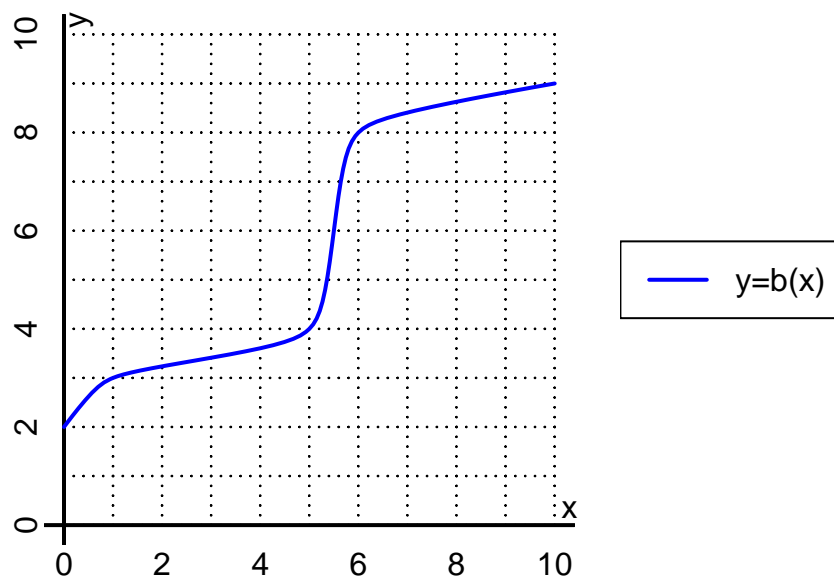$$f(x) = \frac{x-4}{5}$$

a. Evaluate $f(59)$.

b. Evaluate $f^{-1}(10)$.

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10. The function b is represented by the curve $y = b(x)$ graphed below.

a. Evaluate $b(5)$.

b. Evaluate $b^{-1}(3)$.

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11. Function f is defined by the table below.

    a. Complete the columns for $-f(x)$ and $f(-x)$ and $-f(-x)$.

x	$f(x)$	$-f(x)$	$f(-x)$	$-f(-x)$
-2	5			
-1	-8			
0	0			
1	-8			
2	5			

b. Is function f even, odd, or neither?

c. How do you know the answer to part b?